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# A new approach for translating strategic healthcare objectives into operational indicators

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## Abstract

This paper proposes a new performance measurement approach enabling healthcare managers to design a performance management system tailored for their individual settings. The approach has been developed over the last two years in cooperation with the radiology department at a Danish hospital. The approach is aiming at compensating for some of the shortcomings in the current strategic process. By incorporating indicators from all organizational levels into an interactive platform, a visual and detailed performance measurement landscape is connected to the strategic plan.

**Keywords:** Performance Management, Healthcare organizations, Strategic development

## Introduction

Raising internal complexity combined with increasing external expectations has put pressure on the healthcare sector. Consequently the need for consistent and transparent performance management is growing (Digital Sundhed 2008). Consequently the development of performance management systems, suited for the healthcare sector has been rapidly evolving in the last decades. (Landrum & Baker 2004). But it is a difficult task to develop structured, impartial, reliable, timely and valid performance management systems. Especially the process of translating strategic objectives into a useful set of operational performance indicators is traditionally a difficult and complicated task. In the healthcare area this is further complicated by the diverse interest of the three main stakeholders, i.e. the grant giving authorities, the patient and finally the employee (Berler, Pavlopoulos, & Koutsouris 2005). In the development of a strategic plan, hospital management is obligated to incorporate strategic objectives, which shows consideration to all stakeholder groups. But to be able to coordinate and manage these different requirements, a performance management system, encompassing performance indicators from all the three stakeholder groups is needed. This regards to both the strategic, tactical and operational level of the organization.

The success of any manager, regardless of organizational level, is his or hers ability to carry out the objectives expressed in the strategic plan. This means carrying out the vision for the hospital management, within his/hers area of responsibility. To be able to realize any strategic plan, it is necessary to know where to take corrective actions, and

where operations are on track. In modern healthcare clinical educated staff often is placed in a managerial position. Highly skilled clinical personal without managerial education is responsible for managing highly complex “production systems”. A level of complexity which would put even trained managers to the test.

Therefore the motivation for this new performance model is to provide clinical managers with a tool, which enable them to assess performance of their area of responsibility according to a strategic plan. Thereby managers have enhanced possibilities for taken the necessary corrective actions, on a reliable basis. The approach secures that managers doesn't have to be trained operations managers, to command a series of complex operations within healthcare setting.

### **Methodology**

Our results was derived using the action research methodology (Coughlan & Coughlan 2002). The work is based on a two year study, where information are collected from various data sources, including literary material, interviews, workshops and informal conversations with hospital staff. The approach has been continuously validated by hospital mangers, which should ultimately be the end user. The development cycle has been, authors proposing and presented a framework, testing the framework in healthcare settings, and afterwards redesigned inappropriate elements of the model (Winter & Munn-Giddings 2001). This has resulted in that radiology department at hospital of Southern Jutland are likely to be implementing the approach in the upcoming construction of a new performance structure complementing the new strategic plan 2010-2014.

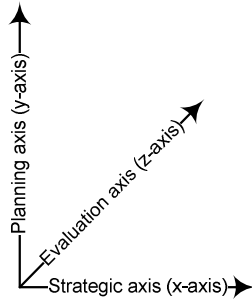
### **Proposed performance management approach**

Any organizations success depends on its ability to accomplish its objectives, in other words reaching a satisfying level of organizational performance. But managing organizational performance is a complicated task, where it is all about translating results of performance into actions for improvements (Veillard et al. 2005). The basic of this approach is to describe the performance of the organization, according to the context of which the indicator should be evaluated. Performance indicators always have some sort of origin, a reason to be measured. But the output of a specific indicator can be affected by several factors in the organization which needs to be considered in order to make the proper corrective actions. As example can a decrease in X-ray exams be due to lack of personal, which is could be caused by high sickness absence. This high sickness absence could be caused by a not so healthy work environment. So the relation between decreases in production could be caused by bad work environment. It is general knowledge that bad work environment and decrease in production in some cases are connected. But to the untrained eye, the relation between more complex parameters often is blurry. If an “unskilled” manager is focussing on increasing the work speed of the remaining personal to compensate for lack in production, this properly would worsen the problem. Therefore these relations are extremely important to be aware of when assessing indicators and consequently take necessary corrective actions.

By using a visual platform, some of these relations can become apparent for the manager. A visual representation would help managers to be aware of these relations when assessing indicators. As example, Waiting lists. This indicator is properly the most used indicator in modern healthcare (Lega & Vendramini 2008) (Griffith et al. 2006) (Radnor & Lovell 2003). It is often distributed on both location/department and

modality. But why is this important? First of all, board of directors often has as a strategic goal to lower the waiting list to a given acceptable level. Secondly the planning levels of the healthcare facility needs the information, to allocate resources for the critical areas. Last but not least, waiting list is incorporated in almost every mandatory report on hospital performance. For a department manager this means that waiting list is used in three different contexts. First the evaluation of strategic compliance, secondly in capacity planning of personal/equipment and finally in the evaluation according national benchmarks. This simple example shows that the manager carefully needs to considerate how to solve the problem.

To be able to coordinate these three dimensions, the model is based on the idea from the CIMOSA representation (Kosanke 1991). The model consists of a three dimensional relation matrix. The first axis describing the strategic objective of the organization, the second axis describing the organizational levels, and the third axis are an evaluation axis, see Figure 1.



*Figure 1: Structural description of performance approach*

In a healthcare environment, these three dimensions would always in some way be interrelated, or at least should be. This is because those indicators which have no strategic motivation should not be measured. If the indicator is strategic justified, then one of the planning levels must be responsible for the accomplishment of the goal. Finally the indicator needs to be evaluated and assessed to be useful.

First step of the process is to determine the value of each of the three axes in the matrix. The strategic axis (x-axis) would often be related to Balanced Scorecard or Business Excellence. Each individual healthcare facility would construct a personalized matrix due to the structure of their strategic objectives. The strategic objectives should be listed along the axis, in the order they appear in the strategic plan. The planning levels would be dependent on the management structure. Hospitals are often divided in three levels of management, with board of directors, department management and team management. It should be kept in mind that the planning axis only should contain organizational levels with managerial responsibility. The z-axis or evaluation axis is referring to the internal and external agencies which evaluate the specific department. This can be a range of different organizations either national or regional. These organizations devise guidelines, and monitor indicators inside clinical and patient related quality. These standards/ indicators are to be placed in accordance with the z-axis. Because of the amount of organizations measuring hospital performance, it is important to carefully select which to implement in the matrix. The strategic plan of the individual healthcare facility would often reveal which organizations, board of directors consider most important. If there is a formalized internal evaluation procedure, this should also be implemented as an element on the z-axis. This would help the department management, in evaluation both internal and external performance.

Next step in the process is to load the matrix with indicators. The concept is to develop the indicators in a cascading structure, where the underlying indicators constitute the overlying. This approach suggests that the indicators are developed top-to-bottom, with the strategic objectives and the evaluation axis as baseline, i.e. the x-z level. All indicators which are defined in mandatory reports are distributed according to the strategic plan of the organization. This will in all cases be possible, because a strategic plan of a hospital is designed to encompass the requirements from national or regional authorities. When the indicators are placed in the x-z level, the indicators should be developed according to the planning levels. As well as the interrelation between strategy and authorities is important, the planning structure of the indicators is just as important. Healthcare facilities are characterized by a high number of planning levels, which demand contiguous multi level indicators (Lemieux-Charles et al. 2003). Each level of the organization would have to be provided with performance indicators which apply for their specific area of responsibility. The process of the actual indicator development is based on a hierarchical step-by-step approach obeying the following two rules.

1. Indicators should not be assigned to individuals, which does not have organizational power to enforce, or don not have full impact on the outcome
2. Indicators should not be assigned to individuals, where the employee does not have the professional competencies to influence the outcome.

The indicators would be designed through the organization (top-to-bottom), from strategic objectives into operational indicators, until one of the rules is violated. It is an iterative process, where each indicator is confirmed by the two rules. If one of the rules are violated, the indicator line, are either stopped, or transformed into proxy indicators. In the case where an indicator is split up, there should be a significant reason to so, because the indicator landscape is attempted minimized. The process of continuously repeating the rules, secures that indicators aren't forced to deep in the organization.

The description of the individual indicator plays almost as an important part of the performance system as the structure itself. If indicators aren't described properly, the assessment of these would often become a mess. Therefore it is recommended that the description of the indicators is compatible with some of the receivers of the mandatory reports. If the organizations indicators resample the recipients' structure, it would lighten the data adjustment. In the Danish healthcare sector, the National Indicator Project (NIP) plays a significant role. All Danish hospitals are obligated to construct mandatory report on a biannual basis. The structure of indicators is therefore encouraged to use the same template as NIP. In this way, indicators used internally, could unaltered be used as reporting for NIP or other national agencies.

### **Testing the approach**

The model was tested at the radiology department, and a detailed 3-dimensional indicator landscape was constructed. Based on the hospitals overall strategic plan, a performance matrix was developed. The strategic plan is a Balanced Scorecard look-a-like, where the four strategic objectives are divided into twelve sub-strategic goals. Each of the departments of the hospital is obligated to follow all twelve goals, which mean they all figure in the matrix. In terms of clarity, only the four strategic objectives are shown, but the underlying level shows each of the twelve sub-strategic goals. In the z-axis, there are three mandatory reports which are to be implemented, board of directors,

NIP reports and the report for the Danish Quality model. The report for board of directors is a description of department management, according to the strategic goals. Each department are obligated to conduct an annual report, stating progress on all twelve strategic goals. The Danish National Indicator Project (NIP) measures the quality of care provided by the hospitals to groups of patients with specific medical conditions. These reports are published on a website ([www.sundhed.dk](http://www.sundhed.dk)) signifying the performance of Danish hospitals. These reports have therefore a significant value in terms of performing well. The Danish Quality model resembles the Business Excellence model in industrial organizations. The model consists of a series of standards for persistent quality of care in the Danish healthcare sector. During the next years there will be an accreditation of all Danish hospitals, and if they act in accordance with the standards they will become certified. These three reports are for a Danish hospital the foremost important, why we chose these as the z-axis. The y-axis is representing the actual planning levels at the hospital. The Hospital of Southern Jutland is fusion of four independent hospitals. Therefore management is structured as a unified top management, and a head of each department. The radiology department therefore has one head of the department, and four local managers which handles daily operation. That leaves management at the hospital in three steps. The full matrix for the radiology department of southern Jutland is shown in Figure 2.

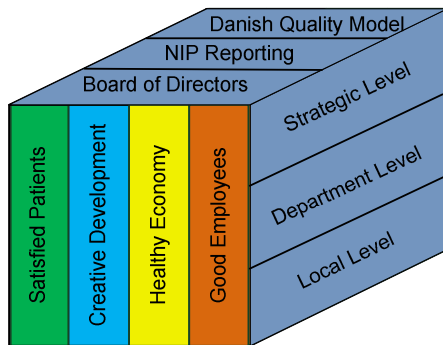


Figure 2: Developed performance matrix, Radiology department of Southern Jutland

By using the two stop-rules in the indicator construction rules only about 40 percent of the indicators reach department level, and only 10 percent of the indicators reach the local management level. Meaning that there were seen a significantly decrease in indicators for local managers. The decrease in indicators is significantly easing the administrative burden of middle managers. Previously middle managers used considerably amount of time reporting on indicators which they didn't have full impact on. With this new structure, the reporting part has been minimized to only encompass the indicators they directly are responsible for. The model therefore gives a more transparent and organization specific structure. The model also provides each organizational layer with the possibility to evaluate its own impact according to the overall strategic objectives.

One of the main objectives for the development of this performance management approach was to make the model useful in a visual environment. Managers which aren't educated in management need to have an intuitive tool, and because many humans are visual oriented, graphics are considered helpful. The model has therefore been built in a web-based environment. By "slicing" through the matrix, indicator sub-levels appear, signifying which measures apply for this particular area. As Figure 3 shows, by opening "Satisfied patients", the sub-goals for this strategic goal become apparent. Furthermore

illustrates the right-hand box where the user presently is located in the performance matrix. By “clicking” your way further down web-based model, all indicators through the planning levels becomes present.

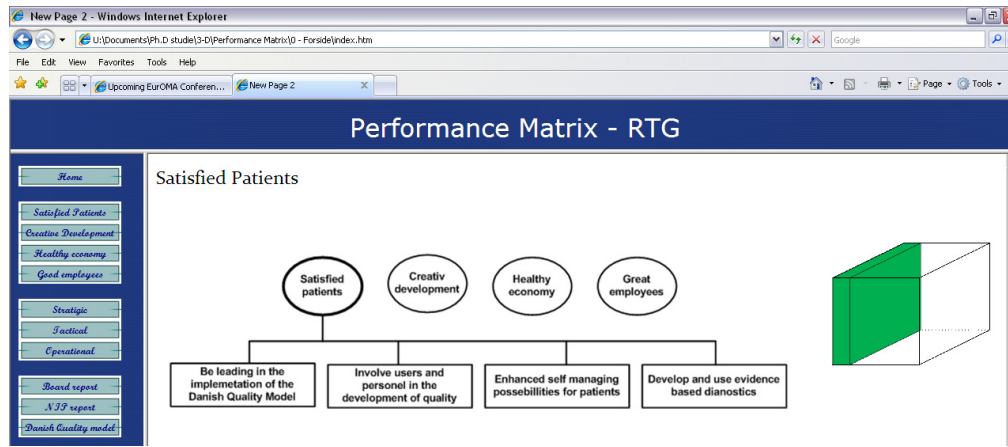


Figure 3 Satisfied Patients

As described each of the indicators resembles the indicator structure from NIP, which mean that indicators are described by following template; Indicator name, Purpose, Responsible, Field of application, Indicator description, Displaying guidance, Data foundation, Indicator goal, Timeframe, Guiding documents, Benchmark and References. As example the indicator “Waiting list, is shown in Figure 4. As for all of the indicators the right-hand side is displaying where the location in the performance matrix. Figure 4 is displaying the strategic use of waiting list in the hospital is according to the strategic goal 1, indicated as a green box. Waiting list is connected to the sub-goal “Be leading in implementation of the Danish Quality Model”, which is the reason that the “slice” is narrow.

	<i>Description</i>
<i>Indicator name</i>	Waiting List
<i>Purpose</i>	Continuously monitor the maximal waiting time for a non-acute patient, distributed on modalities
<i>Responsible</i>	Head of department
<i>Field of application</i>	Each four radiology sections of the hospital
<i>Indicator description</i>	Waiting time to the next open examination slot in the booking system for each modality
<i>Displaying guidance</i>	Y-axis: Waiting time in days X-axis: Calendar days 6 month back
<i>Data foundation</i>	Data is collected from RIS (Radiology Information System)
<i>Indicator goal</i>	Waiting time below 20 days, Complying with National Treatment assurance (4 weeks)
<i>Timeframe</i>	At all time
<i>Guiding documents</i>	The Danish Quality model (www.ikas.dk) The National Indicator Project (www.nip.dk)
<i>Benchmark</i>	Monthly benchmarked internally between all four locations Bi-annual the waiting time is benchmarked externally between Danish hospitals
<i>References</i>	The Danish Quality model, Standard 3.1.1- Standard 3.2.1- Standard 3.6.1 - Standard 3.8.1- Standard 3.11.1

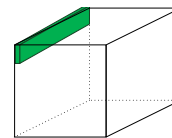


Figure 4: Waiting list indicator, referring to the strategic goal “Satisfied patients”.

Besides being part of the Danish quality model, Waiting list also figure in the bi-annual report for board of directors and in the NIP reports. As for all of the indicators in the performance structure, the web based environment is built, and has been tested at the hospital.

## **Discussion**

The increasing demand for reporting on more and more specific key factors is insisting on an even more all-embracing IT architecture in the future. The demand for clinical equipment capable of conducting performance evaluation would be increasing. The need for all hospital information systems to be able to interact with each other would likewise increase in the future, due to the increasing demand for both national and international benchmarking. Therefore more and more information is needed to handle healthcare production systems. This trend is already putting a mark on software providers which are developing software to meet the demand for performance software. Digital Dashboards, as this approach, are increasingly being implemented as a way of interactively displaying organizational performance (Morgan et al. 2008). Furthermore the last decade's growth towards using more mathematical strict process management approach in industrial organizations is likely to be beneficial in healthcare sector as well. The concept of Six Sigma is already gaining acceptance in several healthcare institutions, and an advancement of this method would be likely in the future (Woodward 2006). In this aspect the use of IT based models will continue to be more and more essential, because the models complexity demands computing power to give valuable feedback. But one key issue is that healthcare organizations would experience information overload. The technical capacity is present, technical providers can provide the equipment which can handle this massive amount of data, and exchange these with other facilities. But are the system developers capable of structuring the data so only useful data is communicated? Is there paid enough attention to the limiting of performance information? Our guess is "No".

A satisfying level of information is individual, some want much and some want less. This is why information management is becoming a more and more complicated task. But with this model, information according to performance is both available and transparent. Available so that employees have the opportunity to gather required information, and transparent because they have the opportunity to see in what context the indicator is measured. It's possible to see only the big lines, but the matrix also gives the opportunity of more detailed descriptions. Therefore this approach is seen as a step in the direction of thoroughly selecting which data, for individual needs. The easy task is to provide all data to everybody, but to provide only the necessary and specific data is an art. Managers and employees would neglect the information, cause by the information spamming.

The issues of uniting soft and hard measures, fitted to changing demands from national authorities necessitate extremely flexible performance models. But this is exactly what a future healthcare performance management system has to embrace. Development of new treatments contributes to the ongoing changing environment, and as a consequence patient expectations to quality continue to intensify. More and more hospitals are using strategic development plans which changes every 4-6 years. These aspects are contributing to the demand for extremely versatile performance systems. When developing suitable performance management systems, the task of deducing measures deep in the organization is a key matter. The task of implementing individual



or team-based indicators is currently a hot topic at numerous hospitals, and is approached by several scientists all over the world. By using the proposed performance structure, the configuration of the indicators becomes understandable to the user. When a performance problem occurs, it clearly appears which parts of the organizations obligations performance is lacking. By visualizing the present indicators in a matrix form, managers have a tool for identifying unsatisfying performance, and in the light of this call for corrective actions.

## **Conclusions**

The future healthcare sector is demanding continues development of performance management model, where flexibility and transparency should define the models of tomorrow. Standards of quality in care would forever be increasing, and the demand for extensive reporting likewise. Healthcare institutions are required to perform first-class in a range of areas, and to manage the organization towards high class performance, a fine-mesh performance model has to be developed. The development of more holistic oriented systems would become essential an essential challenge for healthcare organizations if they are to cope with the external pressure in the future. Deep cross-organizational evaluation would to a great extend support the organizations to manage performance, and consequently secure high quality of care.

## **Limitations**

It is clear that when the model is developed in cooperation in the same environment where it is tested, it would limit the generalizing potential. To fully prove whether the model is useful, it is necessary to widen the scope of the testing to a broader range of healthcare facilities. Despite these implications, the finding in this study can be a useful basis for more research on the difficulties related to the strategic development process in healthcare organizations.

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